AMSAT News Service Weekly Bulletins
Issue: ANS-359
Date: 2019-12-25
Sources: amsat-ans-2019-ans-359-weekly-hyperkitty-7fb89a7bbd.txt

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AMSAT NEWS SERVICE
ANS-359

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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SB SAT @ AMSAT $ANS-359.01
ANS-359 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 359.01
>From AMSAT HQ KENSINGTON, MD.
DATE 2019 Dec 15
To All RADIO AMATEURS
BID: $ANS-359.01

Calling All Radio Amateurs: Help Find OPS-SAT!

Calling all radio amateurs! The European Space Agency (ESA) is challenging anyone with amateur radio equipment to catch the first signals from OPS-SAT, ESA’s brand new space software laboratory.

On 17 December, OPS-SAT will be launched into low-Earth orbit on a Soyuz rocket from Kourou, French Guiana, together with ESA’s Cheops exoplanet-tracker.

Once launched, the satellite will deploy its solar panels and ultra-high frequency antenna, and then start to send signals back home.

Could you be the first on Earth to catch them? ESA’s mission control team in Darmstadt are asking for your help to find the fledgling CubeSat.

OPS-SAT is a first-of-its-kind CubeSat dedicated purely to experimentation. It carries a wide variety of advanced payloads allowing ‘Experimenters’ to deploy and test their software and apps in space.

Anyone can apply to be an Experimenter! Find out more about the mission, and how to apply, here: https://tinyurl.com/ul8327f

Lift-off is scheduled for 08:54:20 UTC on 17 December. Deployment will begin 15044.6 seconds later (T+15044.6 seconds), expected to be at 13:05:04 UTC. OPS-SAT will begin transmitting 15 minutes after satellite deployment and after ultra-high frequency (UHF) antenna and solar array deployment have been confirmed. The first two passes over Europe are expected on the same evening.

To track OPS-SAT, a preliminary launch TLE is available here, and will be updated as soon as new orbital information is available.

Main downlink characteristics:
Space segment transceiver GomSpace NanoCOM AX100
Frequency UHF – 437.2 MHz
Modulation GMSK
Occupied Bandwidth 25 kHz
Baudrate 9k6
Modulation Index 0.5
More information can be found at:
https://github.com/esa/gr-opssat/blob/master/docs/os-uhf-specs.pdf

[ANS thanks ESA for the above information]

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FCC Moves to Remove 3.4 GHz Amateur Satellite Allocation

AMSAT (@AMSAT) tweeted at 11:51 AM on Thu, Dec 12, 2019: "At today's Open Meeting, the Federal Communications Commission passed a Notice of Proposed Rulemaking proposing to delete the amateur allocation at 3.3-3.5 GHz, including the amateur satellite service allocation at 3.4-3.41 GHz."

Later, @AMSAT tweeted:
"Noting the importance of microwave spectrum for future amateur satellites in HEO and/or GEO orbits and beyond, AMSAT will file comments in this proceeding opposing the deletion of this amateur satellite service allocation."

Watch ANS bulletins for future developments.

[ANS thanks @AMSAT for the above information]

Changes to AMSAT-NA TLE Distribution

The following Amateur Radio satellite has been added to this week's TLE distribution:

SMOG-P - NORAD CAT ID 44832 (per Nico Janssen, PA0DLO).
1 44832U 19084J   19346.85910300 .00001000 00000-0 50000-4 0   05
2 44832 97.0009 211.0657 0089111 218.3064 289.3286 15.64885322   06
Frequency: 437.1497 MHz.

The Israeli student satellite Duchifat3 was successfully placed in orbit by ISRO (India) on December 11, 2019 along with several other satellites. Therefore, it will take a while for those objects to separate enough to accurately identify Duchifat3. The following is a set of preliminary TLEs supplied by Nicholas Mahr, KE8AKW (via AMSAT-BB) on December 12, 2019 for your use:

Duchifat3
1 84101U   19345.41319444 .00000000 00000-0 50000-4 0   08
2 84101 37.0000 148.0000 0001442   0.0000 140.0000 15.02563222   03

On Dec. 13, Nico Janssen, PA0DLO, verified Doppler measurements showing that Duchifat 3 is object 44854 (2019-089C). The telemetry downlink frequency is 436.400 MHz. AMSAT

Another PocketQube on this launch (only 5 cm on a side!0 has been identified as ATL 1
1 44830U 19084G   19346.85945000 .00001000 00000-0 50000-4 0   08
2 44830 96.9998 211.0781 0044791 228.7076 277.5196 15.64736264   09
Frequency: 437.1741 MHz.

[ANS thanks Ray Hoad, WA5QGD, Orbital Elements Manager, and Nico Janssen, PA0DLO, for the above information.]

FoxTelem version 1.08w Released

Chris Thompson, AC2CZ/G0KLA, has announced the release of version 1.08w of the FoxTelem software. This is a bug fix release to FoxTelem. If you

have been seeing issues then you should upgrade to this new version.

Primarily it addresses the following:
* Crashes seen at run time
* Issue with DDE transmission to SatPC32 which can hang FoxTelem or
  another program using DDE
* Some minor issues with HuskySat graphs and display

It is available as usual here:
http://amsat.us/FoxTelem/windows/
http://amsat.us/FoxTelem/linux/
http://amsat.us/FoxTelem/mac/

Thanks to all who reported bugs and issues. Keep them coming. Please advise Chris if you see any other issues via g0kla <at> arrl.net

Fox-in-a-box orders from the AMSAT Store after December 13, 12:01 UTC (that is, by the time you see this) will also ship with FoxTelem V1.08w. The FIAB download directory has not yet been upgraded, but a downloaded SD card as well as existing cards are very easy to upgrade. Please see previous articles here and in the ANS for how to do it.

[ANS thanks Chris Thompson, AC2CZ/G0KLA, and Burns Fisher, WB1FJ for the above information]

AMSAT-EA works against the clock on GÉNESIS satellites

AMSAT EA is workin against the clock, together with students from the European university, in the development of the GENESIS satellites. The 1.5 P pico sats, measuring 7.5x5x5cm are expected to be launched from the United States in February 2020. These satellites are based on the designs of EASAT-2 engineering and will allow testings of the EASAT-2 subsytems.

The estimated time in orbit of the GENESIS is estimated at around a month. They incorporate the linear transponder receiver module designed for EASAT-2 and an Amplitude Shift Keying (ASK) transmitter. They will offer functionality of a regenerative repeater in ASK and CW and also incorporate the ionic motor experimental for pocketqubes developed by Applied Ion Systems.

[ANS thanks AMSAT-EA for the above information]

New NASA eBook Reveals Insights of Earth Seen at Night from Space

Earth has many stories to tell, even in the dark of night. Earth at Night, NASA’s new 200-page ebook, is now available online and includes more than 150 images of our planet in darkness as captured from space by Earth-observing satellites and astronauts on the International Space Station over the past 25 years. The book is free for download in Kindle, ePub, and PDF formats at https://www.nasa.gov/connect/ebooks/earthatnight_detail.html

“Earth at Night” shows how scientists use images such as this astronaut photo of the Gulf of Mexico taken from the International Space Station over the southern United States to study our changing planet.

The images reveal how human activity and natural phenomena light up the darkness around the world, depicting the intricate structure of cities,

wildfires and volcanoes raging, auroras dancing across the polar skies, moonlight reflecting off snow and deserts, and other dramatic earthly scenes.

“Earth at Night explores the brilliance of our planet when it is in darkness,” wrote Thomas Zurbuchen, associate administrator of NASA’s Science Mission Directorate, in the book’s foreword. “The book is a compilation of stories depicting the interactions between science and wonder. I am pleased to share this visually stunning and captivating exploration of our home planet.”

In addition to the images, the book tells how scientists use these observations to study our changing planet and aid decision makers in such areas as sustainable energy use and disaster response.

NASA brings together technology, science, and unique global Earth observations to provide societal benefits and strengthen our nation. The agency makes its Earth observations freely and openly available to everyone for use in developing solutions to important global issues such as changing freshwater availability, food security and human health.

[ANS thanks NASA for the above information]

Israel Applauds Successful Launch of Duchifat3

Israel has applauded the successful launch of Isro’s PSLV-C48 rocket that put an experimental satellite built by students of its country into orbit on Wednesday, Dec. 11. The Cuchifat-3 Israeli satellite was among nine foreign customer satellites piggybacking on India's primary payload Risat-2BR1, a military radar imaging satellite. The launch occurred at 09:55 UTC. Full article at https://tinyurl.com/uz7p35u

Duchifat3 was built by high school students supported by Herzliya Science Center in Israel and carries an on-board camera for earth imaging. The V/u FM transponder has an uplink of 145.970 MHz and a downlink of 436.400 MHz -- however some reports indicate that the FM repeater downlink may actually be at 436.420 MHz.

[ANS thanks The Times of India and AMSAT-UK for the above information]

Ham Radio University Satellite Operations Forum on January 4

The 21st annual Ham Radio University, on Saturday, January 4, 2020 is a "A day of education to share ideas, experiences, knowledge and fellowship among Amateur Radio operators." The event will be held at:

LIU / Post
Hillwood Commons Student Center
720 Northern Boulevard
Brookville, NY 11548
Web: http://hamradiouniversity.org/

The suggested donation $5 - no preregistration is required! Doors open at 7:30 AM with first forums at 8:30 AM.

Satellite operation is a part of the learning experience:
11:00 a.m. Satellite Operations for Beginners by Frank Garofalo WA2NDV

[ANS thanks the Ham Radio University for the above information]

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NØKBA was scheduled for Thursday, Dec. 12. The ISS callsign was scheduled to be NA1SS, and the scheduled astronaut was to be Luca Parmitano, KF5KDP.

ANS has verified that these contacts took place as scheduled.

The ARISS contact with Council Rock High School South students at the Northampton, Pennsylvania school on Thursday, December 5 received local press coverage in the Bucks County Courier Times newspaper: https://tinyurl.com/ANS-349-ARISS-CouncilRock

[ANS thanks ARISS for the above information]

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above information]

XT2, BURKINA FASO (Reminder). Harald, DF2WO, is once again active as XT2AW from Ouagadougou, Burkina Faso, until December 20th. Activity is usually holiday style on 160-10 meters using CW, SSB and the Digital modes. He states that he works mostly on the Digital modes (FT8, PSK31, JT65 and RTTY) and slow CW. He will concentrate on 160/80/60 meters. "PLS Skeds for 80 and 160." He will also be active on the Satellites (including 3W into 85cm dish for QO-100) See QRZ.com more details. QSL via M0OXO, direct or by M0OXO's OQRS (www.m0oxo.com/oqrs/).

ZZ, BRAZIL (WFF Op). Operators Joao Carlos/PU4GOD, Leo/PY1CC, Aldir, PY1SAD and Eduardo/PU1REC will be active from the headquarters of the Restinga de Jurubatiba National Park (PYFF0226) with special callsign ZZ1F between December 12-15th. This is during the first weekend of the Brazilian Parks event, under the coordination of Ronaldo (PS8RV). Activity will be on 80/40/20/17/15/12/10/6 meters including VHF using CW, SSB, Satellites and the Digital modes. QSL via LoTW or QRZ.com.

[ANS thanks Ohio/Penn DX Bulletin No. 1443 for the above information]

Satellite Shorts From All Over

+ Some observers have reported that satellite JY1 is, at least occasionally, transmitting image data from its on-board camera.
  (ANS thanks Hasan Schiers, N0AN, for the above information)

+ Want to build a satellite? A scholarly book, "Low Earth Orbit Satellite Design" by Dr. George Sebestyen, Steve Fujikawa, Alex Chuchra, and Nick Galassi, was recently published by Springer, Inc. This book offers an in-depth guide to engineers and professionals seeking to understand the technologies behind Low Earth Orbit satellites. At $139.99 for the hardcover edition, it might be a pricey stocking-stuffer, but paperback and ebook editions are cheaper, and Springer is running a holiday book special:
  https://www.springer.com/us/book/9783319683140#aboutBook
  (ANS thanks The Orbital Index for the above information)

+ ESA’s short film, The Burn, takes us into the heart of Europe’s mission control during a critical moment in the life of a future mission. Filmed on site in Darmstadt, Germany, with the help of volunteers (many of whom are real-life spacecraft controllers), The Burn illustrates the critical importance of decades of investment in state-of-the-art mission operations infrastructure and highly trained teams to flying Europe’s most daring space missions. View the film at: https://tinyurl.com/yxxewnjt
  (ANS thanks ESA for the above information)

+ NASA's Space Launch System, or SLS, aims to carry astronauts to the moon in 2024 as part of the Artemis project, and has been described as "the most powerful rocket ever built." The SLS has just completed its latest round of testing: a "test to failure" pressure test of the main liquid hydrogen tank. The tank withstood more than 260% of expected flight loads before buckling and rupturing! The tank was pushed to its limit and failed at the point predicted by the analysts, which is good news for the models used by NASA.
  (ANS thanks engadget.com and NASA for the above information)

+ Meade Instruments, a company familiar to backyard astronomers, has filed for bankruptcy. The company has fallen on hard times in recent years, as they’ve faced increasing competition. Meade also recently lost a lawsuit, which pushed them over the edge into bankruptcy. The

company is based in Irvine, California, and was founded in 1972. They started out selling small refracting telescopes. They expanded and now sell telescope models worth up to $10,000.
(ANS thanks Universe Today for the above information)

+ The Orbital Index blog (orbitalindex.com) maintains a directory of free space-related software resources for space hobbiests at: https://github.com/orbitalindex/awesome-space
(ANS thanks The Orbital Index for the above information)

+ The Orbital Flight Test of Boeing's CST-100 Starliner spacecraft is scheduled for Dec. 20 at 6:36 a.m. EST. The uncrewed flight test will be Starliner’s maiden mission to the International Space Station for NASA’s Commercial Crew Program.
(ANS thanks NASA for the above information)

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Remember to help keep amateur radio in space,
This week's ANS Editor,

K0JM at amsat dot org